

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Previously Presented) An image processing apparatus that handles image data, comprising:

a dividing unit for dividing image data into large blocks of a prescribed size and further subdividing the large blocks into multiple smaller blocks;

a large block isolated point calculation unit for calculating a first number of isolated points contained in each large block established by said dividing unit;

a small block isolated point calculation unit for calculating a respective second number of isolated points contained in each small block established by said dividing unit; and

a halftone-dot region determination unit for determining that a specified large block among the large blocks established by the dividing unit is a halftone-dot region if all small blocks in the specified large block have an isolated point contained therein, based on the respective second numbers calculated by the small block isolated point calculation unit, and if the first number of isolated points calculated to be contained in the specified large block by the large block isolated point calculation unit is greater than or equal to a first prescribed value.

2. (Previously Presented) An image processing apparatus as claimed in Claim 1,

wherein said halftone-dot region determination unit is operable to determine that the specified large block is a halftone-dot region if the respective second number of isolated points in each small block contained in the large block is greater than or equal to a second prescribed value.

3. (Previously Presented) An image processing apparatus as claimed in Claim 2,

wherein the second prescribed value is smaller than the first prescribed value.

4. (Previously Presented) An image processing apparatus as claimed in Claim 1, further comprising:

an image processing unit for correcting the image data based on the results of determination by said halftone-dot region determination unit.

5. (Previously Presented) An image processing apparatus as claimed in Claim 4, further comprising:

an image forming unit for performing image formation based on the image data corrected by said image processing unit.

6. (Previously Presented) An image processing apparatus that handles image data, comprising:

a dividing unit for dividing image data into multiple small blocks;

a small block isolated point calculation unit for calculating a respective first number of isolated points contained in each small block established by said dividing unit;

a large block isolated point calculation unit for calculating a second number of isolated points contained in a large block of the image data, the large block being composed of multiple smaller blocks based on an aggregated amount of the respective first number of isolated points calculated by said small block isolated point calculation unit; and

a halftone-dot region determination unit for determining that the large block is a halftone-dot region if all small blocks in the large block have an isolated point contained therein, based on the respective first number of isolated points calculated by the small block calculation unit, and if the second number of isolated points calculated to be contained in the large block by the large block isolated point calculation unit is greater than or equal to a first prescribed value.

7. (Previously Presented) An image processing apparatus as claimed in Claim 6,

wherein said halftone-dot region determination unit is operable to determine that the respective first number of isolated points in each small block contained in the large block is greater than or equal to a second prescribed value.

8. (Previously Presented) An image processing apparatus as claimed in Claim 7,

wherein the second prescribed value is smaller than the first prescribed value.

9. (Previously Presented) An image processing apparatus as claimed in Claim 6, further comprising:

an image processing unit for correcting the image data based on the results of determination by said halftone-dot region determination unit.

10. (Previously Presented) An image processing apparatus as claimed in Claim 9, further comprising:

an image forming unit for performing image formation based on the image data corrected by said image processing unit.

11. (Currently Amended) An image processing method that handles image data, said method comprising the steps of:

dividing, in processing circuitry of an image processing apparatus, image data into large blocks of a prescribed size and further subdividing the large blocks into multiple smaller blocks;

calculating, in the processing circuitry of the image processing apparatus, a first respective number of isolated points contained in each large block established via division and a respective second number of isolated points contained in each small block established via division; and

determining, in the processing circuitry of the image processing apparatus, that a specified large block among the large blocks established via division is a halftone-dot region if all small blocks in the specified large block have an isolated point contained therein, based on the calculated respective second numbers of each

small block contained in the specified large block, and if the first number of isolated points calculated to be contained in the specified large block is greater than or equal to a first prescribed value.

12. (Previously Presented) An image processing method as claimed in Claim 11,

wherein said determining step comprises determining that the specified large block is a halftone-dot region if the respective second number of isolated points in each small block contained in the large block is greater than or equal to a second prescribed value.

13. (Previously Presented) An image processing method as claimed in Claim 12,

wherein the second prescribed value is smaller than the first prescribed value.

14. (Currently Amended) An image processing method that handles image data, said method comprising the steps of:

dividing, in processing circuitry of the image processing apparatus, image data into multiple small blocks;

calculating, in the processing circuitry of the image processing apparatus, a respective first number of isolated points contained in each small block established via division;

calculating, in the processing circuitry of the image processing apparatus, a respective second number of isolated points contained in a large block of the image

data, the large block being composed of multiple smaller blocks based on the calculated number of small block isolated points; and

determining, in the processing circuitry of the image processing apparatus,
that the large block is a halftone-dot region if all small blocks in the large block have an isolated point contained therein, based on the calculated respective first number of isolated points in the small blocks contained in the large block, and if calculated second number of isolated points contained in the large block is greater than or equal to a first prescribed value

15. (Previously Presented) An image processing method as claimed in Claim 14,

wherein said determining step comprises determining that the large block is a halftone-dot region if the respective first number of isolated points in each small block contained in the large block is greater than or equal to a second prescribed value.

16. (Previously Presented) An image processing method as claimed in Claim 15,

wherein the second prescribed value is smaller than the first prescribed value.

17. (Previously Presented) An image processing apparatus as claimed in claim 5, further comprising a character determination unit for determining whether at least one character region exists in the image data, wherein:

said image processing unit is operable to correct the image data based on the results of determination by said halftone-dot region determination unit and said character determination unit; and

said image forming unit is operable to perform image formation based on the image data corrected by said image processing unit.

18. (Previously Presented) An image processing apparatus as claimed in claim 1, wherein said small block isolated point calculation unit comprises a plurality of isolated point counters respectively corresponding to the multiple small blocks contained in a large block, each of said plurality of isolated point counters being operable to count the respective second number of isolated points contained in a corresponding one of the small blocks contained in the large block.

19. (Previously Presented) An image processing apparatus as claimed in claim 18, wherein said halftone-dot region determination unit comprises:

a first determination unit for determining whether the calculated first number of isolated points in a large block equals or exceeds the first threshold value;

a second determination unit for determining whether each of said plurality of isolated point counters of said small block isolated point calculation unit have each counted at least one isolated point in the corresponding small block contained in the large block; and

a third determination unit for determining whether the large block is a halftone-dot region based on the determination results of said first determination unit and second determination unit.

20. (Previously Presented) An image processing apparatus as claimed in claim 19, wherein said third determination unit is operable to determine that the large block is a halftone-dot region if said first determination unit determines that the calculated first number of isolated points in the large blocks equals or exceeds the first threshold value, and said second determination unit determines that each of said isolated point counters have counted at least one isolated point in the corresponding small block contained in the large block.

21. (Previously Presented) An image processing apparatus as claimed in claim 6, wherein the second number of isolated points contained in the large block equals an aggregate of the respective first number of isolated points that said small block isolated point calculation unit calculates for each small block composing the large block.

22. (Previously Presented) An image processing apparatus as claimed in claim 6, wherein said large block isolated point calculation unit is operable to calculate the second number of isolated points contained in the large block by calculating an aggregate of the respective first number of isolated points contained in a plurality of contiguous small blocks within a predetermined area of the image data.

23. (Previously Presented) An image processing apparatus as claimed in claim 9, further comprising a character determination unit for determining whether at least one character region exists in the image data, wherein:

said image processing unit is operable to correct the image data based on the results of determination by said halftone-dot region determination unit and said character determination unit; and

said image forming unit is operable to perform image formation based on the image data corrected by said image processing unit.

24. (Previously Presented) An image processing method as claimed in claim 11, further comprising the steps of:

correcting the image data based on the results of determination of said determining step; and

forming images based on the corrected image data.

25. (Previously Presented) An image processing method as claimed in claim 14, further comprising the steps of:

correcting the image data based on the results of determination of said determining step; and

forming images based on the corrected image data.